

## Radiation Survey - Closed Detector Configuration

### Revision Log

Version Number	Date Approved	Pages Affected	Description of Revisions
1.1	7/3/01	All	Initial Issue

### Approvals

<u>Jon Kotcher</u> DØ Run Coordinator	<u>7/5/01</u> Date
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# **1 INTRODUCTION**

## **1.1 Purpose**

This procedure describes the steps to be taken by authorized individuals to perform radiation surveys at designated points within the DØ collision hall following the presence of beam in the Tevatron.

## **1.2 Scope and Applicability**

This procedure is to be followed before changing the access status of the DØ Collision Hall from "Controlled Access" to "Supervised Access". Dose rates in certain accessible areas when the detector is in the closed configuration are to be measured and documented to ensure that radiation levels are below acceptable limits.

# **2 PRECAUTIONS AND LIMITATIONS**

- A. A minimum of two authorized and qualified surveyors are required to carry out this procedure.

# **3 PREREQUISITE ACTIONS**

## **3.1 Documents**

### Authorized Surveyors

- [1] Review most recent completed radiation survey map.
- [2] Obtain blank survey map for the current detector configuration.

## **3.2 Special equipment, tools, parts, and supplies**

### Authorized Surveyors

- [1] Obtain TLD badges, Log Survey Meter, pen, and clipboard.
- [2] Verify that the LSM is functioning properly by performing the battery and source checks, and that it is not overdue for calibration.

### 3.3 Special approvals

#### Controlled Access Coordinator

- [1] Verify Main Control Room permission to revert to supervised access status.

## 4 PROCEDURE

### 4.1 Preparing for entry

#### Controlled Access Coordinator

- [1] Verify that:
  - [a] the toroid and solenoid magnet power supplies are ramped down and locked out with a DØ Operations lock.
  - [b] the surveyor(s) are on the list of DØ personnel authorized to perform the surveys and that they have the required training (Rad Worker, Controlled Access, DØ Hazard Awareness, and LOTO 1)
- [2] Contact the Main Control Room (MCR), and inform them that the opening-up survey party is ready to enter the Hall.
- [3] Upon receiving authorization from the MCR, inform the access party that they may enter the Collision Hall by following the standard Controlled Access entry procedure (ref: DØ-SAFETY-BLDG-003)

### 4.2 Performing the survey

#### Authorized Surveyors

**CAUTION** *IF dose rates greater than 20 mR per hour @ 1 foot are encountered at any time during the survey, THEN terminate the survey and leave the collision hall by following the usual controlled access exit procedure, maintaining the enclosure interlocks. Inform the Controlled Access Coordinator and have the Shift Captain contact the Beams Division RSO for further instructions.*

- [1] Record the date, time, instrument information, beam information, and surveyors' names on the map.

## 4.2 Performing the survey (continued)

**NOTE**      *Wipes for surface contamination checks are not required in the collision hall so this section of the map should not be filled out.*

### Authorized Surveyors (continued)

- [2]      Enter the Collision Hall, following the Controlled Access entry procedure and maintaining the enclosure interlocks.
- [3]      Proceed to the north C-layer muon truss survey point, above the muon shielding.
- [4]      Check the dose rate at one foot from the shielding and record the dose rate on the survey map.
- [5]      Proceed to the east-side pit floor survey point and record the dose rate on the survey map.
- [6]      Proceed to the central electronics platform survey point and record the dose rate on the survey map.
- [7]      Proceed to the south C-layer muon truss survey point, above the muon shielding.
- [8]      Check the dose rate at one foot from the shielding and record the dose rate on the survey map.
- [9]      Proceed to the west-side pit floor survey point and record the dose rate on the survey map.
- [10]     Record the maximum dose found in the collision hall on the designated part of the map, and enter any additional comments in the space provided.

## 4.3 Leaving the hall

### Authorized Surveyors

- [1]      Return to the labyrinth. Close and latch the supervised access gate.
- [2]      Call the Main Control Room from the phone within the labyrinth and inform them that the survey is completed and that you intend to leave the enclosure, dropping the interlocks as you leave. Request that MCR release the CA keytree door so that CA keys may be returned.
- [3]      Leave the collision hall, propping open the CA door, and dropping the enclosure interlocks.

### **4.3 Leaving the hall (continued)**

#### Authorized Surveyors (continued)

- [4] Return the controlled access keys to the CA key tree.

#### Controlled Access Coordinator

- [1] Inform the MCR that one CA key will be placed in the supervised access key tree for the duration of the supervised access period, and place one CA key there.

### **4.4 Distribution of survey map**

#### Authorized Surveyors

- [1] Make three copies of the completed survey map.
- [2] Post a copy at each of the following locations:
- the supervised access gate in the personnel labyrinth.
  - the entrance to the collision hall at the base of the shield wall, if the shielding blocks have been removed.
  - the survey-map binder on the shift captain's console.
- [3] Send the original to the Beams Division RSO at MS-371.

## **5 REFERENCES**

- A. Training database ([http://www-esh.fnal.gov/home/esh\\_home\\_page.html](http://www-esh.fnal.gov/home/esh_home_page.html))
- B. Controlled access procedure (DØ-SAFETY-BLDG-003)
- C. DØ Collision Hall survey map binder

## **6 APPENDICES**

- A. DØ Collision Hall radiation survey map-closed configuration (blank)

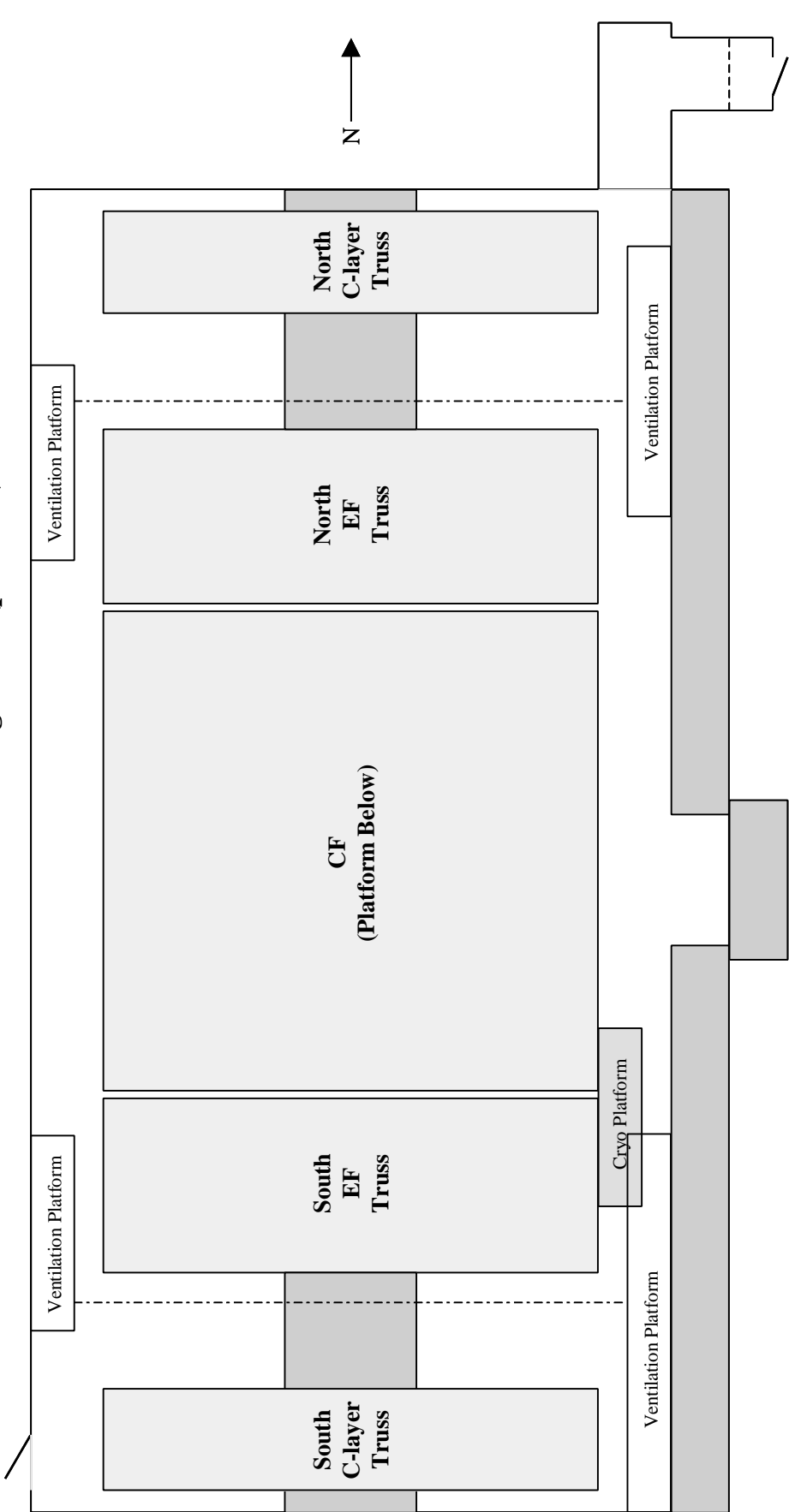
DATE: \_\_\_\_\_

TIME: \_\_\_\_\_

PURPOSE: \_\_\_\_\_

RWP #: \_\_\_\_\_

D0 Collision Hall  
Detector in the Closed Configuration (plan view)



All Dose Rates Below _____ mR/hr Unless Noted		Highest Dose Rate Found: _____ mR/hr at 1 ft	
Inst Type: _____	_____	Note: RSO approval required to work in areas where it is >100 mR/hr@ 1 foot OR < 100 ccpm on a wipe.	
Inst. No: _____	_____		
Batt/Source Chk: _____	_____		
Cal. Due Date: _____	_____		
<b>LEGEND</b> Numbers appearing on map are mR/hr @ 1 ft readings unless denoted with symbols below * = mR/hr @ contact A=Air Sample    ○ =Wipe    (F) =Floor wipe		Comments: _____	
Beam Off Date: _____ Beam Off Time: _____ Intensity: _____		Surveyed By: _____ Reviewed By: _____	